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10/577,067

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EXAMINER

ANDREWS, MICHAEL

ART UNIT

PAPER NUMBER

2834

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/577,067 | Applicant(s) AMANO, RYUICHIRO | |
| | Examiner MICHAEL ANDREWS | Art Unit 2834 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,4,6,9,10,12,15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,4,6,9,10,12,15 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>5/27/2010</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is responsive to the Applicant's communication filed May 27, 2010. In virtue of this communication and the amendment filed May 11, 2010:

- claims 1-16 were previously pending;
- claims 1, 3, 5, 7-8, 11, and 13-14 were cancelled by the amendment; thus
- claims 2, 4, 6, 9-10, 12, and 15-16 are now pending in the instant application.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 27, 2010 has been entered.

Response to Arguments

1. Applicant's arguments filed May 11, 2010 have been fully considered but they are not persuasive.

The Applicant's first argument (page 6, line 17 to page 8, line 5 of the Remarks) states that the "power wire" [u] of Miyawaki does not connect the crossover wire [figures 2-3; the crossover wires are those extending from U2 to u, from u to U1, from V1 to v, etc.] to the second tooth winding portion [U2]. However, figures 1-3 of Miyawaki clearly show this to be untrue. The Applicant mistakenly states that the power wires are

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preferred to as “power lines” in the abstract of Miyawaki and not shown in the figures. However, the claimed “power lines” are in fact referred to as “lead wires u, v and w” in line 9 of the abstract and shown in figures 1-3. Thus, the claimed limitations are disclosed and this argument is unpersuasive.

The Applicant’s second argument (page 7, lines 14-17) states that the limitation, “the neutral wire, the first tooth winding portion, the crossover wire, the power wire, the second tooth winding portion of each winding defining a seamless, continuous line”, is not disclosed by Miyawaki. While Miyawaki does not explicitly disclose a continuous winding, this teaching is well known in the art and new grounds of rejection have been added below. Further, the Examiner can find no support for this limitation in the original disclosure, making it new matter.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 2, 4, 6, 9-10, 12, and 15-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The newly added limitation of claim 2, "the neutral wire, the first tooth winding portion, the crossover wire, the power wire, the second tooth winding portion of each winding defining a seamless, continuous line", was never explicitly stated in the original disclosure, nor was it implied in the specification or the figures.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 4, 6, 9, 10, 12, 15, and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Miyawaki et al. (JP 2003-134716), hereinafter referred to as "Miyawaki", in view of Fujita et al. (US 2002/0043886 A1), hereinafter referred to as "Fujita".

With regard to claim 2, Miyawaki discloses a stator [10] of a motor (see [0002] and figures 1-6) comprising:

a stator core [11] having a plurality of teeth [12] (see [0007] and figure 3);

a plurality of windings [U, V, W] with a part of each of the windings being wound around the teeth [12] of the stator core [11] to form a tooth winding portion [U1, U2, V1, V2, W1, W2] and a lead-out wire [u, 2u, v, 2v, w, 2w] extending from a corresponding one of the tooth winding portions (see [0008] and figures 1-3); and

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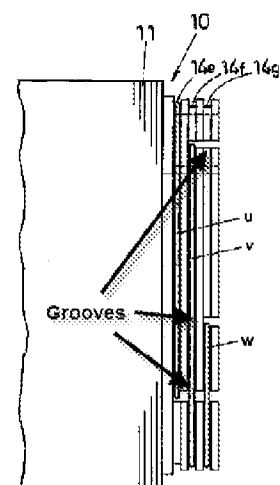
an insulator [14] including a plurality of lead-out guide portions [14a/b/c] with the lead-out wires [u, 2u, v, 2v, w, 2w] being drawn out from the corresponding one of the tooth winding portions [U1, U2, V1, V2, W1, W2] of the windings [U, V, W] (see [0008] and figure 3),

the lead-out guide portions [14a/b/c] being disposed on a radially outward side of respective slots [13], each respective slot [13] being defined between two adjacent teeth [12] of the stator core [11], and each lead-out guide portion [14a/b/c] being offset toward an adjacent tooth [12] from a center line of the respective slot [13] (see figure 3);

each of the windings [U, V, W] being connected to a neutral wire [1u, 2u, 1v, 2v, 1w, 2w] (see [0008] and figure 2), with the tooth winding portions [U1, U2, V1, V2, W1, W2] including a first tooth winding portion [U1] that follows the neutral wire [2u] and is wound about a first tooth [12a] of the teeth [12] (see figure 2 and 3), and a second tooth winding portion [U2] that is wound about a second tooth [12d] of the teeth [12] that is radially opposed to the first tooth [12a] (see figure 3) with one end connected to the neutral wire [1u, 2u] (see figure 2), and

each of the windings [U, V, W] further including a crossover wire (see figures 2-3; the crossover wires are those extending from U2 to u, from u to U1, from V1 to v, etc.), and a power wire [u, v, w] with the crossover wire extending from the first tooth winding portion [U1] toward the second tooth winding portion [U2] and with the power wire connecting the crossover wire to the second tooth winding

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portion [U2] (see figure 2), such that a first lead-out portion is formed between the first tooth winding portion [U1] and the second tooth winding portion [U2] (see figure 2; the lead out portion is where the crossover wires meet at [14a]) and a second lead-out portion is formed between the second tooth winding portion [U2] and the neutral wire [2u] (see figure 2), and the first and second lead-out portions serve as the lead-out wires of the first and second tooth winding portions (see figure 2; both lead-out portions connect each coil to neutral and to power).

Except that Miyawaki does not expressly disclose the neutral wire [2u], the first tooth winding portion [U1], the crossover wire [figures 2-3; the crossover wires are those extending from U2 to u, from u to U1, from V1 to v, etc.], the power wire [u, v, w], the second tooth winding portion [U2] of each winding [U, V, W] defining a seamless, continuous line.

Fujita discloses a stator comprising a stator core [17] having a plurality of teeth (figure 3) and a plurality of windings [18] wound around the teeth of the stator core [17], wherein the winding [18] defines a seamless, continuous line (figure 8; [0130], lines 1-5; [0131], lines 6-7).

It would have been obvious to one of ordinary skill in the art when the invention was made to implement the winding of Miyawaki by forming it from a single, continuous wire as taught by Fujita, for reducing the axial height thereof, since Fujita teaches that reducing the axial height increases the coils radius of curvature which reduces contact stresses and prevents damage to the coil ([0131], lines 7-13).

With regard to claim 4, the combination of Miyawaki and Fujita discloses the stator according to claim 2, as stated above, wherein each of the lead-out guide portions [14a/b/c] comprises a groove (see annotated figure 6 of Miyawaki) provided adjacent to a periphery of a corresponding one of the first and second tooth winding portions [13a-13f] (see figure 3 of Miyawaki).

With regard to claim 6, the combination of Miyawaki and Fujita discloses the stator according to claim 4, as stated above, wherein the grooves of the lead out guide portions [14a/b/c] are circumferentially spaced from each other (figure 6 of Miyawaki).

With regard to claim 9, the combination of Miyawaki and Fujita discloses the stator according to claim 4, as stated above, wherein the stator core [10] includes a core main body [11] with the teeth [12] extending radially inwardly from the core main body (see [0007] and figure 3 of Miyawaki).

With regard to claim 10, the combination of Miyawaki and Fujita discloses the stator according to claim 9, as stated above, wherein the insulator [14] is provided on an axial end surface of the core main body [11] (see figure 5) with the lead out guide portions [14a/b/c] formed in an axial end surface of the insulator [14] (see figure 3 of Miyawaki).

With regard to claim 12, the combination of Miyawaki and Fujita discloses the stator according to claim 2, as stated above, wherein the lead out guide portions [14a/b/c] are circumferentially spaced from each other (figure 3 of Miyawaki).

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With regard to claim 15, the combination of Miyawaki and Fujita discloses the stator according to claim 2, as stated above, wherein the stator core [10] includes a core main body [11] with the teeth [12] extending radially inwardly from the core main body ([0007] and figure 3 of Miyawaki).

With regard to claim 16, the combination of Miyawaki and Fujita discloses the stator according to claim 15, as stated above, wherein the insulator [14] is provided on an axial end surface of the core main body [11] (see figure 5) with the lead out guide portions [14a/b/c] formed in an axial end surface of the insulator [14] (see figure 3 of Miyawaki).

Citation of Relevant Prior Art

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art:

- Futami et al. (US 2003/0020344 A1) discloses an electric motor with a plurality of windings and winding terminal receiving portions;
- Eggers et al. (US 2002/0135259 A1) discloses a stator having a plurality of teeth and windings with an insulator which supports the lead out wires;
- Suzuki et al. (US 6,177,751 B1) discloses a stator with insulators between the teeth and windings.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Andrews whose telephone number is (571)270-

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7554. The examiner can normally be reached on Monday through Thursday between the hours of 7:30 and 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen Leung can be reached at (571)272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quyen Leung/
Supervisory Patent Examiner, Art Unit 2834

/M. A./
Examiner, Art Unit 2834